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WHAT IS CLAIMED IS:

1. An apparatus for regulating the temperature of Computed Tomography (CT) detector array electronics for computed tomography imaging machines  
5 comprising:
  - a hot air plenum for accumulating air from the electronics;
  - a thermoelectric cooler connected at one end to the hot side plenum;
  - a heat sink connected to the thermoelectric cooler;
  - a cold air plenum for directing cool air to the electronics; and
  - 10 a circulation fan to draw air from the hot side plenum across the thermoelectric cooler and into the cold side plenum.
2. The electronics temperature regulating apparatus of claim 1 further comprising a temperature measurement device.
3. The electronics temperature regulating apparatus of claim 2 further  
15 comprising a programmable temperature controller, said temperature controller in electronic communication with the temperature measurement device.
4. The electronics temperature regulating apparatus of claim 3 wherein said programmable temperature controller regulates the temperature of electronics by either increasing circulation fan speed or increasing power to the thermoelectric  
20 cooler.
5. The electronics temperature regulating apparatus of claim 3 wherein heat sinks are attached to some or all of the heat generating electronics.
6. A method for regulating the temperature of CT detector array electronics for CT imaging machines wherein the CT detector electronics primarily

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consist of analog to digital converters that are separated from each other and permit the passage of air, comprising the steps of:

blowing air through the electronics;

collecting the air;

5       cooling the air with a thermoelectric cooler.

7.       The method for cooling the electronics of a CT detector array of claim 6 further comprising the step of providing a hot air plenum for collecting the air.

8.       The method for cooling the electronics of a CT detector array of claim 7 further comprising the step of providing a circulation fan to circulate cool air through  
10      the electronics.

9.       The method for cooling the electronics of a CT detector array of claim 8 further comprising the step of regulating the temperature of the cooling air by increasing or decreasing the speed of the circulation fan.

10.      A method for regulating the temperature of Computed Tomography  
15      (CT) detector array electronics for CT imaging machines wherein there are apertures between the CT detector electronics, comprising the steps of:

sealing the CT electronics in an enclosure;

circulating air through the enclosure; and

using a thermoelectric cooler to cool the circulating air.

20      11.    An apparatus for cooling the electronics of a CT detector array, said detector array comprised of a plurality of photodiodes, said photodiodes being connected to analog to digital converters, said analog to digital converters generating heat when in operation:

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a hot side plenum for accumulating air heated by the electronics;  
a thermoelectric cooler attached to one end of the hot side plenum;  
a heat sink connected in thermal relationship to the thermal electric cooler;  
a cold side plenum for directing air across the electronics; and  
5 a circulation fan to draw air from the hot side plenum across the thermoelectric cooler and into the cold side plenum.

12. The electronics temperature regulating apparatus of claim 11 further comprising a temperature measurement device.

13. The electronics temperature regulating apparatus of claim 12 further  
10 comprising a programmable temperature controller, said temperature controller in electronic communication with the temperature measurement device.

14. The electronics temperature regulating apparatus of claim 13 wherein said programmable temperature controller regulates the temperature of electronics by either increasing circulation fan speed or increasing power to the thermoelectric  
15 cooler.

15. An apparatus for regulating the temperature of CT detector array electronics for computed tomography imaging machines comprising:

a plurality of heat pipes in thermal contact with the electronics, said heat pipes  
extending outwardly from the spreader plate;  
20 a heat sink attached to said heat pipes;  
a blower cage containing said spreader plate; and  
a circulation fan for blowing air across the heat sink.

16. The electronics temperature regulating apparatus of claim 15 further

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comprising a spreader plate interposed between the electronics and the heat pipes, said spreader plate providing an efficient thermal contact surface between the electronics and the heat pipe.

17. The electronics temperature regulating apparatus of claim 16 further  
5 comprising an axial groove siphon, said axial groove siphon being in thermal contact with the electronics.

18. The electronics temperature regulating apparatus of claim 17 wherein said axial groove siphon is situated at an angle such that the evaporator end is lower than the condenser end.

10 19. The electronics temperature regulating apparatus of claim 15 further comprising a temperature measurement device within the blower cage.

20. The electronics temperature regulating apparatus of claim 19 further comprising a programmable temperature controller, said temperature controller in electronic communication with the temperature measurement device.

15 21. The electronics temperature regulating apparatus of claim 20 wherein said programmable temperature controller regulates the temperature of electronics by either increasing circulation fan speed.

22. An apparatus for regulating the temperature of CT detector array electronics for computed tomography imaging machines comprising:

20 a spreader plate in thermal contact with the electronics;  
a plurality of heat pipes, attached to the spreader plate, said heat pipes being  
in thermal contact with the spreader plate;  
a heat sink attached to said spreader heat pipes;

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a blower cage containing said spreader plate; and  
a circulation fan for blowing air across the heat sink.

23. The electronics temperature regulating apparatus of claim 19 further comprising a temperature measurement device within the blower cage.

5 24. The electronics temperature regulating apparatus of claim 20 further comprising a programmable temperature controller, said temperature controller in electronic communication with the temperature measurement device.

25. The electronics temperature regulating apparatus of claim 21 wherein said programmable temperature controller regulates the temperature of electronics  
10 by either increasing circulation fan speed.

26. A method for regulating the temperature of Computed Tomography (CT) detector array electronics using horizontally mounted heat pipes in thermal contact with the detector electronics comprising the steps of:

providing a heat sink;  
15 moving heat away from said electronics to the heat sink; and  
providing a cooling fan to facilitate heat dissipation over the heat sink.